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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,842	07/28/2003	Bhabendra Pradhan	A03092US (15630.141)	5824

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GARVEY SMITH NEHRBASS & NORTH, LLC
LAKEWAY 3, SUITE 3290
3838 NORTH CAUSEWAY BLVD.
METAIRIE, LA 70002

EXAMINER	
MCCRACKEN, DANIEL	

ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
03/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,842	PRADHAN, BHABENDRA	
	Examiner	Art Unit	
	DANIEL C. MCCRACKEN	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10, 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Citation to the Specification will be in the following format (S. # : ¶) where # denotes the page number and ¶ denotes the paragraph number. Citation to patent literature will be in the form (Inventor # : LL) where # is the column number and LL is the line number. Citation to the pre-grant publication literature will be in the following format (Inventor # : ¶) where # denotes the page number and ¶ denotes the paragraph number.

Response to Arguments

The amendments to the specification and claims have been received, and accordingly the objections to the specification and claims are withdrawn. The rejections under 35 U.S.C. §112, ¶2 are obviated by Applicants amendment and are withdrawn.

Applicant's arguments filed 1/18/2008 have been fully considered but they are not persuasive. Applicants mischaracterize the rejection – no allegation that the entire invention was admitted was made – only that the means for making the catalyst were old and known. Taking the product of one process and using in another (i.e. aggregating steps) is *prima facie* obvious. *See e.g. In re Kamlet*, 185 F.2d 709, 88 USPQ 106 (CCPA 1950). This is further buttressed by the ample knowledge in the art of the effect of the catalyst on the resultant nanotube/nanofiber/nanomaterial, as reflected in the references.

Applicants should understand that the process itself is unremarkable. Arguably, official notice would have been proper to reject much of this case. The general formula for making "nanocarbon materials" is: hydrocarbon + catalyst + heat = nanocarbon materials. This is reflected numerous places. *See e.g.* (Krishnankutty at 296 *et seq.*) (2. Experimental) *and* (Rodriguez at 3862) (Experimental Section). Furthermore, the effect of catalyst size,

composition, etc. (while only vaguely claimed) on the resulting morphology of the nanocarbon materials has received thorough treatment in the literature. The Baker/Rodgriguez group has been a leader in this area, hence the citation of the Rodriguez article. Applicants should be apprised that there are several families of US patents to the same group as well as other journal articles that explain this. *See e.g.* Applicants IDS.

The Rodriguez article provides ample discussion of the effect of the catalyst on the resulting nanocarbon material, especially in the section conveniently entitled "Role of the Catalyst Particle." Rodriguez provides the following teachings, suggestions or motivations throughout:

> *Depending on the chemical nature of the catalyst and the conditions of the reaction, assorted nanofiber structures with various morphologies and different degrees of crystallinity can be produced*. In addition, the width of the nanofiber formed is directly related to that of the catalyst particle, and this parameter can easily be controlled by preparation and pretreatment of the catalyst. The typical lengths of carbon nanofibers produced by these methods vary from 5 to 100 mm and widths of between 5 and 500 nm.
> (Rodriguez at 3862, col 1) (emphasis added).

> The alignment and crystalline perfection of the platelets is a parameter that is *governed by the nature and shape of the catalyst particle* and orientation of the precipitating faces.
> (Rodriguez at 3864, col. 1) (citations omitted, emphasis added).

> The latter faces control not only the degree of crystalline perfection but also the geometric alignment of the graphite platelets. (Rodriguez at 3865, col. 1) (discussing the effect of the catalyst on alignment of the graphite platelets).

Similar teaching, suggestions and motivations can be found in Krishnankutty:

> These data indicate that by altering the bimetallic composition of the catalyst it is possible to produce a major impact on the structure of the carbon filaments formed during the interaction of such particles with ethylene.
> (Krishnankutty at 298, col 1).

Catalyst affects nanostructure size, morphology, etc. – period. This is known. Using a process (Hunt) that teaches methods control the size and crystallinity of metal powders (i.e. unsupported catalysts) to arrive at a particular catalyst, when particular catalysts are known to affect morphology and size is not inventive. It is akin to optimization of a result effective variable. Such optimization does not impart patentability. *See e.g. In re Boesch*, 205 USPQ 215, 219 (CCPA 1980).

The Examiner is faced with the duty to "cite the best references at his . . . command." 37 C.F.R. 1.104(c)(2). What art could be better than the admitted prior art taught in the specification that is claimed in a dependent claim? Applicants take the position that one of ordinary skill in the art (presumably knowing that which is taught in Rodriguez), when presented with the ability to make catalysts with specific size, crystallinity, etc. (i.e. "Hunt" – contrary to the allegations of Applicants, specific cites to Hunt *were* provided), would not arrive at the claimed invention. The Examiner respectfully disagrees. "A person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR International Co. v. Teleflex, Inc.*, 550 US __, 82 USPQ2d 1385, 1397 (2007). The rejection is maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The rejection as set forth in the non-final office action dated 8/20/2007 is expressly incorporated herein by reference.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

All amendments made in response to this Office Action must be accompanied by a pinpoint citation to the Specification (i.e. page and paragraph or line number) to indicate where Applicants are drawing their support.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel C. McCracken whose telephone number is (571) 272-6537. The examiner can normally be reached on Monday through Friday, 9 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel C. McCracken/

/Stanley Silverman/

Supervisory Patent Examiner, Art Unit 1793

Daniel C. McCracken
Examiner, Art Unit 1793
DCM

Stanley S. Silverman
SPE, Art Unit 1793